

CHERNOBAY, A.V.; SHEPELEVA, A.I.; ZUBKOVA, V.S.; Prinimali uchastiye:  
DELYATITSKAYA, R.Ya., KATMISSKAYA, E.V.; BOBRYSEVA, A.M.

Spectrophotometric study of N-vinylcarbazole and methyl methacrylate  
copolymers. Vysokom. soed. 7 no.6:1080-1084 Je '65. (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov,  
stsintillyatsionnykh materialov i osobo chistykh khimicheskikh  
veshchestv.

GOROBETS, V.; KURKALOV, I.; SHEPELEVA, D.

Algorithm for thermal calculation of electric traction  
motors. Izv. AN Latv. SSR no.5:65-72 '63. (MIRA 17:1)

1. Institut elektroniki i vychislitel'noy tekhniki AN  
Latviyskoy SSR.

SOV/123-59-15-59728

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 15, p 118 (USSR)

AUTHOR: Shepeleva, D.M.

TITLE: The MineraloCeramic Material of TsM-332 Grade

PERIODICAL: V sb.: O primeneni i tverdykh splavov i mineralokeramiki. M., 1957, pp 77 - 87

ABSTRACT: The chemical composition of mineral ceramics (MC) and a comparison of the performance of articles made of it with the properties of articles made of metallo-ceramic hard alloys is given. MC consists of aluminum oxide in which up to 1% impurities are contained. The ground mineralo-ceramic powder is pressed, dried and sintered at a temperature of 1,700°C. The advantages of MC are: a high resistance to heat, resistance to wear and lower adhesiveness to the metal machined. Consequently, higher cutting speeds are reached in comparison with metallo-ceramic hard alloys. At the same time the bending strength limit of MC is by 3 - 4 times lower than that of metallo-ceramic hard alloys. As MC cannot be attached by

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The Mineralo-Ceramic Material of TSM-332 Grade

soldering it is necessary to fasten this material in a mechanical way to the tool. Machine parts with a high resistance to wear are made of MC (the nozzles of sandblast apparatus, draw plates for wire drawing, guides for the rope and textile manufacture). The shape and dimension of various articles made of MC by the Moscow Combine of Hard Alloys are stated. 21 figures.

S.S.M.

Card 2/2

SHEPELEVA, F. S.

PA 8T13

USSR/Chemistry - Ethers  
Alpha - Ketophosphinic acids

Feb 1947

"Ethers of Alpha-Ketophosphinic Acids," M. I. Kabachnik, P. A. Rossiyskaya,  
F. S. Shepeleva, 8 pp

"Izv Ak Nauk Khim" No 2

Study of the two types of derivatives of carboxylic acids.

8T13

SARYCHEV, Boris Mikhaylovich, inzh.. Prinimali uchastiye: SHIROKOVA,  
L.P., inzh.; SHEPELEYA, F.S., inzh.. SHNEYEROV, S.A.,  
red.izd-va; VOLKOV, S.V., tekhn.red.

[Tables for use in connection with the hanging of wires and  
wire cables for high voltage lines] Montazhnye tablitsy  
provodov i trosov vysokovol'tnykh linii. Izd.2., perer.  
Moskva, Izd-vo M-va kommun.khoz.RSFSR, 1959. 178 p. (MIRA 13:2)  
(Electric lines--Overhead)

126-3-23/34

AUTHORS: Orlov, A.N., Plishkin, Yu.M. and Shepeleva, I. M.

TITLE: Conditions of equilibrium of an atom chain.

(Usloviya, ravnovesiya tsepochki atomov).

PERIODICAL: "Fizika Metallov i Metallovedeniye" (Physics of Metals and Metallurgy), 1957, Vol.4, No.3, pp. 540-542 (U.S.S.R.)

ABSTRACT: Simple considerations given in the work of Frenkel', Ya.I. (1) indicate that in an atomic chain, which is not subjected to external forces, all the interatomic distances are equal in the equilibrium position. In a strongly stretched chain the equilibrium configuration of the atoms is non-symmetrical. So far it has not been mentioned that in a sufficiently long chain the disturbance of the ideal periodicity in the form of anomalously large distances between certain atoms corresponds to minimum energy even for an insignificant stretching of the chain. Some of the results are given of investigations of the conditions of stability of an atomic chain with a given type of dependence of the potential energy of the interaction of the nearer neighbouring atoms; the interaction of the distant atoms are not taken into consideration. On the basis of the obtained results it is stated that any conclusion on the disturbance of periodicity in a stressed three-dimensional ideal crystal would be premature. More detailed consideration

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APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549220009

Conditions of equilibrium of an atom chain. (Cont.)

of these problems and proof of the here contained results will be dealt with in subsequent communications of the authors.

There is one figure and one Slavic reference.

SUBMITTED: January 5, 1957.

ASSOCIATION: Institute of Metal Physics Ural Branch of the Ac.Sc., U.S.S.R. (Institut Fiziki Metallov Ural'skogo Filiala AN SSSR).

AVAILABLE: Library of Congress

Card 2/2

SHEPELEVA, I. S.

SHEPELEVA, I. S.: "Polypous disease of the stomach based on material from the hospital surgical clinic of the First Moscow Order of Lenin Medical Institute between 1939 and 1955 (clinical-physiological investigation)." First Moscow Order of Lenin Medical Institute I. M. Sechenov. Moscow. 1956. (DISSERTATION FOR THE DEGREE OF CANDIDATE IN MEDICAL SCIENCE).

Knizhnaya letopis'  
No. 85, 1956. Moscow.



SHEPELEVA, I.S. (Moskva, K-9, Suvorovskiy bul'var, d.6, kv.12)

Gastric polyposis. Nov.khir.arkh. no.4:55-59 J1-Ag '57.  
(MIRA 10:11)

1. Kafedra gospi'tal'noy khirurgii 1-go Moskovskogo meditsinskogo  
instituta (nauchnyy rukovoditel' - prof. V.E.Salishchev)  
(STOMACH--TUMORS)

SHEPELEVA, I.S.

Posterior arthroereisis in the treatment of drop foot. Ortop.  
travn.i protez. 21 no.6:38-42 Je '60. (MIRA 13:12)  
(FOOT-DISEASES)

MITBREYT, I.M., kand. med. nauk; SHEPELEVA, I.S., kand. med. nauk

Stabilizing surgery in the treatment of foot deformities following poliomyelitis. Ortop., travm. i protez. 25 no.2:39-47 F '64.

(MIRA 18:1)

1. Iz kliniki detskoy ortopedii i travmatologii na baze Moskovskogo ortopedicheskogo gospihalya (nachal'nik - doktor med. nauk S.N. Voskresenskiy; zav. kliniki - chlen-korrespondent AMN SSSR prof. V.D. Chaklin) Tsentral'nogo instituta travmatologii i ortopedii (direktor - chlen-korrespondent AMN SSSR prof. M.V.Volkov). Adres avtora: Moskva, Zh-44, 2-ya Dubrovskaya ul., d. 13, klinika Tsentral'nogo instituta travmatologii i ortopedii na baze ortopedicheskogo gospihalya.

VOLKOV, N.V., prof.; BALABA, T.Ya., doktor med. nauk; MEL'NIKOVA, V.M.,  
kand. med. nauk; SHKPELEVA, I.S., kand. med. nauk.

Modern achievements of chemistry in the practice of traumat-  
ology and orthopedia; results of the work of the Central  
Institute of Traumatology and Orthopedia. Ortop., travm.  
i protez. 26 no.8:3-10. Ag '65. (MIRA 18:9)

1. Chlen-korrespondent AMN SSSR (for Volkov).

MAKHSON, N.Ye.; SHEPELEVA, I.S.

Glomic tumors of the fingers with lesions of the phalanges.  
Khirurgiya 40 no.11:124-129 N '65. (MIRA 18:7)

1. Otdeleniye kostnoy patologii (zav. - prof. V.Ya. Shlapoberskiy)  
TSentral'nogo instituta travmatologii i ortopedii Ministerstva  
zdravookhraneniya SSSR (dir. - prof. M.V.Volkov), Moskva.

SOV/137-59-4-7999

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 4, p 92 (USSR)

AUTHOR: Shepeleva, M.D.

TITLE: The TsM-332 Mineral-Ceramic Material

PERIODICAL: V sb.: O primeneni tverdykh splavov i mineralokeramiki, Moscow, 1957, pp 77 - 87

ABSTRACT: Data are presented on physical, mechanical and operational properties of instrument TsM-332 mineral ceramics on  $Al_2O_3$  base. This material is used for cutting metals and non-metallic materials, for drawing and for the preparation of wear resistant parts. The information includes data on shape and dimensions of plates and other articles produced by MKTS.

I.B.

Card 1/1

POLYAKOV, I.F., inzh.; MEDVEDEV, P.M., inzh.; FISHMAN, M.G., inzh.;  
SHEPELEVA, N.A., inzh.; SAGALOVICH, D.N., nauchnyy red.;  
~~KRUGOVA, Ts.A., red.~~; KAMOLOVA, V.M., tekhn.red.

[Time norms for electric welding under flux in general machinery  
manufacturing plants] Obshchemashinostroitel'nye normativy  
vremeni na avtomaticheskuiu elektrodugovuiu svarku pod sloem  
fliusa. Leningrad, Gos.soiuznoe izd-vo sudostroitel.promyshl.,  
1959. 110 p. (MIRA 12:8)

1. Moscow, Nauchno-issledovatel'skiy institut truda. TSentral'-  
noye byuro promyshlennykh normativov po trudu. 2. Sotrudniki  
TSentral'nogo nauchno-issledovatel'skogo instituta Gosudarstvennogo  
Komiteta Soveta Ministrov SSSR po sudostroyeniyu (for Polyakov,  
Medvedev, Fishman, Shepeleva).  
(Electric welding) (Time study)

KOLBASOVA, V.K.; LYAMINA, V.P., starshiy nauchnyy sotrud.; MAKAROV, A.S.;  
SHEPELEVA, N.A., starshiy nauchnyy sotrud.; SHPINDLER, M.A.,  
kand. ekon. nauk, red.; BELOV, M., red.; TROPINOVA, Z., tekhn. red.

[Workers' control and nationalization of the industry in the Kostroma Government; collection of documents, 1917-1919] Rabochii kontrol' i natsionalizatsiia promyshlennosti v Kostromskoi gubernii; sbornik dokumentov, 1917-1919 gg. Kostroma, Kostromskoe knizhnoe izd-vo, 1960. 223 p. (MIRA 14:5)

1. Kostroma (Province) Upravleniye vnutrennikh del. Arkhivnyy otdel.
2. Nachal'nik Gosudarstvennogo arkhiva Kostromskoi oblasti (for Kolbasov)
3. Nachal'nik Arkhivnogo otdela Upravleniya vnutrennikh del Kostromskogo oblispolkoma (for Makarov)
4. Arkhivnyy otdel Upravleniya vnutrennikh del Kostromskogo oblispolkoma (for Shepeleva, Lyamina)

(Kostroma Province--Works councils)

(Kostroma Province--Industries)



YARYGIN, N.Ye. (Moskva); SHEPELEVA, N.S. (Moskva)

Late results of bilateral vagotomy [with summary in English]. Arkh.  
pat. 19 no.7:41-44 '57. (MLRA 10:9)

1. Iz kafedry patologicheskoy anatomii (zav. - chlen-korrespondent  
AMN SSSR prof. A.I.Strukov) i iz khirurgicheskoy kliniki sanitarno-  
gigiyenicheskogo fakul'teta (zav. - prof. I.S.Zhorov) i Moskovskogo  
ordena Lenina meditsinskogo instituta imeni I.M.Sechenova

(VAGOTOMY, in various diseases,

peptic ulcer, postop. follow-up (Rus))

(PEPTIC ULCER, surgery,

vagotomy, postop. follow-up (Rus))

SMYKALOVA, R. I.

"Di-cis-beta-Chlorovinylthallium Chloride," Iz. Ak. Nauk SSSR, Otdel. Khim. Nauk,  
No. 6, 1949. Izbr., Inst. Organic Chemistry, Dept. Chem. Sci., Acad. Sci., -c1949-.

NESMEYANOV, A. N.; BORISOV, A. YE.; SHEPELEVA, R. I.

Thallium Compounds

Di-cis- $\beta$ -Chlorovinylthallium chloride. Uch.zap.Mosk.un. No. 132 1950

9. Monthly List of Russian Accessions, Library of Congress, October 195<sup>2</sup>~~0~~, Uncl.

... L.: SHAVYRINA, V.V.: SHEPELEVA, R.I.

Nitroso Compounds

Interaction of di-(cyclohexene-1-yl-1), 2, 3-dimethyl-butadiene-1, 3 and di-phenyl-butadiene-1, 3 with nitroso compounds, Uch. zap. Mosk. un., No. 132. 1950.

Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED.

SHAPULEVA, N. I.

Chemical Abst.  
Vol. 48 No. 9  
May 10, 1954  
Organic Chemistry

④ Chem

The reactions of dienic hydrocarbons with nitroso compounds. Addition of 2,3-dimethyl-1,3-butadiene, 1-phenyl-1,3-butadiene, and 3,4-cyclohexen-1-yl to aromatic nitroso compounds. Yu. A. Arbatov, N. L. Fedvukina, V. V. Shavrina, and R. I. Shepeleva. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 639-42 (Engl. translation). See C.A. 47, 4342f. H. L. H.

SHEPELEVA, R. I.

USSR/Chemistry - Diene Syntheses Nitroso Compounds

May/Jun 52

"The Reaction Between Diene Hydrocarbons and Nitroso Compounds. Addition of 2, 3-Dimethylbutadiene-1, 3, 1-Phenylbutadiene-1, 3, and Di-(Cyclohexene-1-yl-1) to Aromatic Nitroso Compounds," Yu. A. Arbuzov, N. L. Fedyukina, V. V. Shavyrina, R. I. Shepeleva, Inst of Org Chem, Acad Sci USSR; Moscow State U imeni M. V. Lomonosov

"Iz Ak Nauk, Otdel Khim Nauk" No 3, pp 566-569

Studied the reactions of 2, 3-dimethylbutadiene-1, 3, trans-1-phenylbutadiene-1, 3 and di-(cyclohexene-1-yl-1) with aromatic nitroso compds. Obtained the addn products of 2, 3-dimethylbutadiene-1, 3 with nitrosobenzene and p-nitrosotoluene, of trans-1-phenylbutadiene-1, 3 with nitrosobenzene, o-nitrosotoluene and p-nitrosotoluene, and of di-(cyclohexene-1-yl-1) with nitrosobenzene and p-nitrosotoluene.

PA 220T23


S/138/62/000/010/006/008  
A051/A126

AUTHORS: Korotkova, A.A., Sandomirskiy, D.M., Shepeleva, T.G.

TITLE: Properties of natural latex foam

PERIODICAL: Kauchuk i rezina, no. 10, 1962, 47 - 50

TEXT: Results of an investigation of foam formation and natural latex foam properties are submitted. Effects of concentration, viscosity, and surface tension of latex on the properties of produced foams were studied. The effect of ammonia content, thermal aging and additions of surface-active substances on the properties of qualitex natural latex was investigated. Surface tension of the latex was determined according to the ring removal method. The viscosity was measured on the Heplar viscosimeter. The foam formation activity of the latex is expressed through  $v_t$  ( $v$  - volume of the foam, formed by pneumatic foaming over a period of time  $t$ , prior to the beginning of bubble formation). Dilution of the qualitex sharply reduces its viscosity and slightly increases its surface tension. Its foam-forming activity correspondingly drops, the multiplicity increases and the resistance to mechanical foam lamination decreases.



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S/138/62/000/010/006/008  
A051/A126

Properties of natural latex foam

The removal of the ammonia to a value of  $\text{pH} = 8.5$  does not change the qualitex. At  $\text{pH} < 8.5$ , the latex viscosity sharply increases. The surface tension and foam-forming activity of the qualitex increases slightly. The foam multiplicity does not change, the resistance to lamination drops sharply, and the latex serum exfoliates. The introduction of surface-active substances does not considerably alter the qualitex pH; all these substances, excepting ammonium caseinate, in dosages of up to 0.5%, first sharply and then slightly reduce the surface tension and increase the qualitex viscosity. The foam-forming activity is reduced by the surface-active substances with the exception of non-ionized ОП-10 (OP-10). The latter increases viscosity and, correspondingly, the foam-forming activity. The tested substances were arranged in the following sequence, according to optimum properties which they give to the qualitex:  $\text{ПТ} < \text{ПК} < \text{ОП} - 10 < \text{РК} < \text{РТ}$  and  $\text{КА}$  ( $\text{ПТ} < \text{ПК} < \text{ОП} - 10 < \text{РК} < \text{РТ}$  and  $\text{КА}$ ); the foam-forming activity, multiplicity and mechanical foam resistance, taken as the main indices. The most favorable properties are obtained with triethanolamine paraffinate. Thermal aging of the qualitex causes after 7 days the surface tension to increase; after 3 days, the viscosity. Certain physico-chemical law sequences are experimentally confirmed, and it is further concluded that there is also an optimum viscosity value for

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Properties of natural latex foam

S/138/62/000/010/006/008  
A051/A126

natural latex, lying within the range of 35 - 50 cP. There are 7 figures and 3 tables.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovykh i lateksnykh izdeliy i Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova (Scientific Research Institute of Rubber and Latex Articles and Moscow Institute of Fine Chemical Technology im. M.V. Lomonosov)

Card 3/3

SHEPELEVA, V.K.

Certain functional characteristics of the visual analyzer of the pole cat.  
Dokl.AN SSSR 93 no.3:569-572 N '53. (MLRA 6:11)

1. Predstavleno akademikom K.M.Bykovym. (Pole cats) (Color sense)

SHEPELEVA, V.K.

Liveliness of nervous processes in wild mammals. Dokl.AN SSSR 95  
no.1:203-206 Mr '54. (MLRA 7:3)

1. Gosudarstvennyy estestvenno-nauchnyy institut im. P.F.Lesgafta.  
(Nervous system--Mammals) (Conditioned response)

SHEPELEVA, V. K.

USSR/Biology - Physiology

Card : 1/1

Authors : Shepeleva, V. K.

Title : Certain data on the study of color-vision of dogs.

Periodical : Dokl. AN SSSR, 96, Ed. 6, 1277 - 1280, June 1954

Abstract : The author investigated the symptoms of color-vision of dogs as well as the reaction of the visual, olfactory and motor analyzers of the tested animals. Results are described. Eleven references. Graphs.

Institution : The P. S. Lesgaft State Natural Sciences Institute

Presented by : Academician L. A. Orbeli, April 12, 1954

SHEPELEVA, V. K.

USSE/Medicine - Physiology

Card 1/1      Pub. 22 - 54/54

Authors      : Shepeleva, V. K.

Title        : Effect of artificial blindness on the conditional reflex activity of dogs

Periodical   : Dok. AN SSSR 102/5, 1053-1056, Jun 11, 1955

Abstract     : Experiments were conducted on dogs to determine the effect of imposed blindness and deafness on the conditional reflex activities of the animals. Results are described. Twenty-four references: 20 Russian and USSR, 2 USA and 2 German (1908-1954). Table; graphs.

Institution   : .....

Presented by : Academician L. A. Orbeli, February 10, 1955

SHEPELEVA, V.K.

Nervous process activity in the meter analyser of the polecat (Putorius :  
putorius). Dokl.AN SSSR 106 no.5:941-944 P '56. (MIRA 9:7)

1.Gesudarstvennyy estestvenno-nauchnyy institut imeni P.F.Lesgafta.  
Predstavlyayemyy akademikom L.A.Orbeli.  
(POLECAT) (REFLEXES)

-USSR / Human and Animal Physiology. Nervous System.

T-10

Abs Jour : Ref Zhur - Biologiya, No 1, 1959, No. 3843

Author : Shepeleva, V. K.  
Inst : Natural Science Institute imeni P. F. Lesgaft  
Title : Some Functional Properties of the Visual Analysor  
in the Forest Polecat

Orig Pub : Izv. Yestestv.-nauchn. in-ta im. P. F. Lesgafta, 1957,  
28, 144-158

Abstract : In a setting of free movement, conditioned motion-food reflexes were developed in a forest polecat in response to a composite stimulus. The animal was given additional food each time it made the correct choice of one among 5 entrances to its box. The entrances differed in color and brightness of their cardboard coverings as well as by position and presence or absence of a small irritant in them (camphor). By levelling, assembling and breaking

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- USSR / Human and Animal Physiology. Nervous System.

Abs Jour : Ref Zhur - Biologiya, No 1, 1959, No. 3843

up the elements (visual, kinesthetic and olfactory) of the composite stimulus, it could be shown that contrary to general belief, the forest polecat is expressly capable of differentiating between color stimuli (red and green). The predominant importance to this animal of olfactory and especially kinesthetic stimuli as compared with visual was established. A characteristic property of this animal, as a hole dweller, is its very much greater response to light stimulants of lesser magnitude.

Card 2/2

VATSURO, E.G.; SHEPELEVA, V.K.

Interaction between the olfactory and auditory, as well as the olfactory and photic components of simultaneous complex stimuli. Zhur.vys.nerv.deiat. 12 no.1:103-109 Ja-F '62. (MIRA 15:12)

1. Sechenov Institute of Evolutionary Physiology, U.S.S.R.  
Academy of Sciences, Leningrad.  
(CONDITIONED RESPONSE) (SMELL) (HEARING) (VISION)



SHEPELEVA, V.K.

Gastric secretion in jackals (*Canis aureus* L.) Opyt izuch. reg.  
fiziol. funk. 6:126-132 '63 (MIRA 17:3)

Secretory function of the stomach in seals. Ibid.:132-135

1. Laboratoriya ekologicheskoy fiziologii (zav. - prof. A.D. Slonim) i laboratoriya fiziologii pishchevareniya (zav. - prof. A.V. Solov'yev) Instituta fiziologii imeni Pavlova AN SSSR.

SHEPELEVA, V.K.

Body temperature in seals. Opyt izuch. reg. fiziol. funk. 6:  
191-192 '63 (MIRA 17:3)

1. Laboratoriya ekologicheskoy fiziologii ( zav. - prof. A.D.  
Slonim) Instituta fiziologii imeni Pavlova AN SSSR.

SHEPELEVA, Ye.D.

Find of blue-green algae in the lower Cambrian sediments of  
Leningrad Province. Trudy VNIGNI no.27:170-172 '60. (MIRA 17:3)

SHEPELEVA, Ye.D.

Plant (?) remains of unknown systematic position from deposits of the Bavly series of the Volga-Ural petroleum province.  
Dokl. AN SSSR 142 no.2:456-457 Ja '62. (MIRA 15:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut. Predstavleno akademikom N.M.Strakhovym.  
(Volga-Ural Region--Paleobotany, Stratigraphic)

SHEPELEVA, Ye.D.

Complexes of spores (?) from sediments in the Bavly series  
of the Volga-Ural region. Trudy VNIGNI no.37:7-17 '63.  
(MIRA 16:8)

SHEPELEVA, Ye.D.; TIMOFEYEV, B.V.

Micropaleophytological characteristics of the Pachelma series and its stratigraphic analogues. Dokl. AN SSSR 153 no.5:1158-1159 D '63. (MIRA 17:1)

1. Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy geologorazvedochnyy institut, Leningrad, i Vsesoyuznyy nauchno-issledovatel'skiy neftyanoy geologorazvedochnyy institut, Moskva. Predstavleno akademikom D.V. Nalivkinym.



SHEPELEVA, YE. S.

PA 27/49T25

USSR/Chemistry - Magnesium Compounds, Jan/Feb 49

Chemistry - Synthesis

Organic

"Study in the Field of Phosphor Organic Compounds:  
XI, Case of Anomalous Course of the Synthesis of  
Magnesium Organic Compounds," M. I. Kabachnik, Ye. S.  
Shepeleva, Inst Org Chem, Acad Sci USSR, 4 pp

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 1

Gives anomalous reaction of haloid compound of  
phosphor (PSCl<sub>2</sub>) with methyl iodide of magnesium.  
Basic product of the reaction is a sulfide of the  
completely methylated diphosphyl, i.e., a substance  
containing two atoms of phosphor in the molecule.

27/49T25

USSR/Chemistry - Magnesium Compounds, Jan/Feb 49  
Organic (Contd.)

Good yield of dimethylphosphinic acid is obtained  
by the oxidation of this sulfide. Submitted  
3 Mar 48.

27/49T25



CA

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**Reaction of benzaldehyde with phosphorus trichloride**  
M. I. Kabachnik and E. S. Shupakova (Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1950, 39-46. The mode of interaction of aldehydes with  $\text{PCl}_3$ , which has not been adequately explained by the earlier work of Fieser (*Monatsh.* 5, 627 (1884)), Page (*J. C. S. Trans.* 1901, 1034) and (1904), appears to involve the preliminary formation of a trivalent P derivative, rather than a "pentavalent" one usually ascribed to the 1st reaction stage. Thus,  $\text{BzH}$  first forms  $(\text{PhCHClO})_3\text{P}$  which on heating undergoes the Arbusov isomerization into the chlorophosphonate. In this case, the  $\alpha$ -position of Cl makes possible a room-temp. isomerization. The theory conforms to the known difficult alkylation of  $\text{PCl}_3$  and to the known reaction of 3 moles of an aldehyde with  $\text{PCl}_3$ . Mixing 41.2 g.  $\text{PCl}_3$  with 30 g.  $\text{BzH}$  (both freshly distd.) with cooling, followed by heating in sealed tubes 2 hrs. at 195-205°, gave a viscous product, most of which bp 121-6°, in 60-1° (35%). Excess  $\text{PCl}_3$  gave a 62% yield. The residue is a glass, the amt. of which rises with lower temps. The main product is  $\text{PhCHClP(O)OH}$ , resulting from the action of  $\text{PCl}_3$  on the corresponding phosphonate. Reaction of  $\text{BzH}$  and  $\text{PCl}_3$  in a 1:1 ratio in the cold yields a pink oil which cannot be distd. and yields on hydrolysis 2 mols. of  $\text{BzH}$  and  $\text{PhCH(OH)P(O)OH}$ . 1 (15 g.) allowed to stand 1-2 days in 18 g. abs. EtOH gave on distn. at atm. pressure, then on 100%, 71%,  $\text{PhCHClP(O)OH}$ , bp 128-9°,  $d_4^{25}$  1.1950,  $n_D^{25}$  1.5125, the same is

obtained in 35.5% yield when a crude mixt. of 7.5 g.  $\text{BzH}$  and 10.3 g.  $\text{PCl}_3$  is heated 2 hrs. at 195-205°, then treated with EtOH. 1 (8 g.) with 25 g. MeOH similarly gave 52%  $\text{PhCHClP(O)OH}$ , bp 127°,  $d_4^{25}$  1.2811,  $n_D^{25}$  1.5298. Heating 1 g. 1 with 3.25 g.  $\text{PhOH}$  6.5 hrs. progressively from 175° to 220° gave much residue and 2 g.  $\text{PhCHClP(O)OH}$ , bp 121-4°,  $d_4^{25}$  1.21,  $n_D^{25}$  1.5878. Allowing 1 to stand in  $\text{H}_2\text{O}$  until dissolved, followed by evapn. is done at 35-40°, gave 64%  $\text{PhCHClP(O)OH}$ , m. 133-4° (from MePh, then  $\text{Me}_2\text{CO}-\text{C}_6\text{H}_6$ ); the same result occurs after 10 days' exposure of 1 to atm. moisture (100% yield); the use of boiling  $\text{H}_2\text{O}$  for hydrolysis gives the acid of low m.p., which rises to 130° only after many crystals, with considerable Cl ion being found in the aq. soln. The Cl acid with  $\text{Ag}_2\text{CO}_3$  ppt. the di Ag salt, sol. in  $\text{HNO}_3$  and in excess of aq. soln. of the Cl acid, boiling the soln. yields  $\text{AgCl}$   $\text{PhCHClP(O)OH}$ , 2.51 g. and 2.01 g.  $\text{Ag}_2\text{CO}_3$  in  $\text{H}_2\text{O}$  soln., refluxed until the original Ag salt has gradually been transformed into  $\text{AgCl}$ , gave 1.78 g.  $\text{AgCl}$  (100%) and the Ag-free soln. on evapn. crystn. from  $\text{C}_6\text{H}_6$ -AcOH (2:1), then abs. EtOH, gave  $\text{PhCHClP(O)OH}$ , m. 127-8°, thus 10.3 g. in 0.5 ml. EtOH and 5 ml. EtOH with 0.1 g.  $\text{PhNH}_2$  gave the aniline salt, m. 280-1-2°. Addn. of excess  $\text{PhNH}_2$  to 4 g. 1 in EtOH, removal of the  $\text{PhNH}_2\text{HCl}$  evapn., taking up in EtOH, and pptn. with dil. HCl, gave 2 g.  $\text{PhCHClP(O)OH}$ , m. 102-4° (from dil. EtOH, then from MeOH). G. M. Kosolapoff

CA

Reaction of aldehydes with halogen derivatives of tri-valent phosphorus. M. I. Katschuk and R. S. Shepeleva. *Doklady Akad. Nauk S.S.S.R.* 75, 219-22 (1950); cf. C.I. 44, 7257. The formation of  $\text{PCH}_3$  with aldehydes and ketones is a general reaction, with few exceptions. The yields vary with the nature of the carbonyl compd. and

with the halide used. Aliphatic aldehydes yield much  $\text{HCl}$  and give poor results, possibly because of crutone-type condensation brought about by  $\text{PCH}_3$  as a water-retaining substance. Chloral could not be made to react even under very drastic conditions (5 hrs. at  $270^\circ$ ). Aromatic aldehydes react well, but  $p\text{-Me}_2\text{NC}_6\text{H}_4\text{CHO}$  yields so much tar that no clean product was isolated.  $m\text{-CH}_3\text{C}_6\text{H}_4\text{CHO}$  gives little of the desired product and causes considerable oxidation of the  $\text{PCH}_3$ , yielding colored reduction products of the aldehyde.  $o\text{-HOC}_6\text{H}_4\text{CHO}$  yields much  $\text{HCl}$  and after 2.5 hrs. at  $185\text{--}200^\circ$  gives a tarry mass which on distn

readily gives the cyclic product:  $o\text{-C}_6\text{H}_4\text{CHClPOCl}_2$ , which with ales. opens the ring yielding  $o\text{-C}_6\text{H}_4(\text{OH})\text{CHClPOCl}_2$ . The phosphonyl dichlorides readily form the corresponding free acids and esters with  $\text{H}_2\text{O}$  and ales. Typical procedure: 1 mole aldehyde and 1.5 moles  $\text{PCH}_3$  (or 1 mole of any 3 valent P halide) are heated in sealed tube 3-6 hrs. at  $180\text{--}200^\circ$  ( $\text{CH}_3\text{CHO}$  required  $240^\circ$ , some others needed but  $160\text{--}170^\circ$ ); on cooling, the viscous liquid was pumped free of  $\text{HCl}$  at a water pump, then distilled under a good vacuum. Only  $\text{PrCHO}$  gave a poorly distillable product which was not obtained in pure state. The following products were obtained:  $\text{C}_6\text{H}_5\text{POCH}_3$  ( $60^\circ$  from  $\text{CH}_3\text{O}$  and  $\text{PCH}_3$ ), bp  $77\text{--}8^\circ$ ,  $d_4^{20}$  1.601,  $n_D^{20}$  1.4978 (cf. Yakubovich and Ginsburg, C.I. 45, 2857c); free acid,  $m$ .  $86^\circ$ ;  $di\text{-Me ester}$ , bp  $59\text{--}60^\circ$ ,  $d_4^{20}$  1.3283,  $n_D^{20}$  1.4125;  $di\text{-Et ester}$ , b.  $101^\circ$ ,  $d_4^{20}$  1.1992,  $n_D^{20}$  1.4115;  $o\text{-C}_6\text{H}_4\text{POCl}_2$ ,  $m$ .  $51\text{--}5^\circ$ , b.  $120^\circ$ ;  $PrCH_2\text{POBr}_2$  ( $7\text{--}8^\circ$  from  $\text{CH}_3\text{O}$  and  $\text{PBr}_3$ ), b.  $124\text{--}4^\circ$ ,  $d_4^{20}$  2.0262,  $n_D^{20}$  1.6100;  $MeCH_2\text{POCH}_3$  ( $14^\circ$  from

1951

CA

MeCHO, and PCl<sub>5</sub> or 16% using AcCl as mch, by 71  
 2°, d<sub>4</sub> 1.5631, n<sub>D</sub> 1.4911; free acid, m. 185-0°, d<sub>4</sub> 1.5508,  
 PCl<sub>5</sub> (10% from PCl<sub>5</sub> and PCl<sub>3</sub>), by 107°, d<sub>4</sub> 1.5508,  
 n<sub>D</sub> 1.4885; free acid, m. 86-7°, PkCHClPOCl<sub>2</sub> (62% from  
 PCl<sub>5</sub> and PCl<sub>3</sub>), m. 90-1°, by 121-6°, d<sub>4</sub> 1.4334, n<sub>D</sub> 1.4440,  
 free acid, m. 134°, di-Me ester, by 127°, d<sub>4</sub> 1.2811, n<sub>D</sub>  
 1.3298; di-Et ester, by 128-0°, d<sub>4</sub> 1.1920, n<sub>D</sub> 1.3125;  
 di-Ph ester (20% from Bell and (PbO)<sub>2</sub>PCl<sub>2</sub>), m. 69-3°, by  
 208-10°, n<sub>D</sub> 1.5627 (7); o-phenylene ester (24% from Bell  
 and o-Cl<sub>2</sub>CH<sub>2</sub>PCl<sub>2</sub>), m. about 123°, by 181°, p-MeC<sub>6</sub>H<sub>4</sub>-  
 CHClPOCl<sub>2</sub> (35% from PCl<sub>5</sub> and p-MeC<sub>6</sub>H<sub>4</sub>CHO), m.  
 52-4°, by 129.5-30.5°; free acid, m. 130-1.5°; p-ClC<sub>6</sub>H<sub>4</sub>-  
 CHClPOCl<sub>2</sub> (40% from PCl<sub>5</sub> and p-ClC<sub>6</sub>H<sub>4</sub>CHO), m. 58-  
 60.5°, by 141-4.5°; free acid, m. 152-3°; m-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>-  
 CHClPOCl<sub>2</sub> (3.7% from PCl<sub>5</sub> and m-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CHO), m.  
 62.5-4.5°, by 110°; o-Cl<sub>2</sub>CH<sub>2</sub>CHClPOCl<sub>2</sub> (10% from  
 PCl<sub>5</sub> and o-HOC<sub>6</sub>H<sub>4</sub>CHO), by 138-40°, d<sub>4</sub> 1.5092, n<sub>D</sub>  
 1.5700; o-Cl<sub>2</sub>CH<sub>2</sub>CHClPOCl<sub>2</sub> (m. 100-2.5°. While  
 the Fieser reaction of aldehydes with PCl<sub>5</sub> [Monats. 5,  
 121, 127 (1884); 7, 20 (1886)] yields poorly crystallizable  
 1-hydroxyphosphonic acids, the present procedure yields  
 readily purifiable Cl analogs. G. M. Kosolapoff

SHEPELEVA, Ye. S. and KABACHNIK, M. I.

"Investigations of Organic Phosphorus Compounds. Report No 15: Reaction of Formaldehyde with Phosphorus Trichloride," Izvestiya Akademii Nauk, Otdeleniye Khimicheskikh Nauk, No 2, 1951, pp 185-190.

Inst. Org. Chem., AS USSR

Translation W - 21625, 6 Mar 52

SHEPELEVA, YU.S.

Chem Abs 448

1-25-54

Organic Chemistry

Trichloromethylphosphonic acid. M. I. Kabachnik and E. S. Shepeleva. Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedinenii, Sbornik 2, 150-1 (1952); cf. C.A. 45, 6569i, 10191b; Prat, et al., C.A. 44, 5800i.—Heating 200 g.  $\text{PCl}_3$  and 30 g. paraformaldehyde in autoclave 10 hrs. at  $250^\circ$  yields 60-5%  $\text{ClCH}_2\text{POCl}_2$ ,  $b_p$   $87-8^\circ$ ,  $b_s$   $52-3^\circ$ ,  $n_D^{20}$  1.4978,  $d_4^{20}$  1.6361. This added to 15 parts  $\text{H}_2\text{O}$  (external cooling may be needed in large run) undergoes hydrolysis; the soln. is evapd. on a steam bath, reevapd. after addn. of  $\text{H}_2\text{O}$ , and kept in a desiccator with KOH to yield crude  $\text{ClCH}_2\text{PO(OH)}_2$ , which is purified by soln. in  $\text{Et}_2\text{O-MePh}$  and slow evapn. of the solvents in a vessel with  $\text{H}_2\text{SO}_4$  and paraffin chips. The acid m.  $80-7.5^\circ$ . G. M. K.

Chem

(3)

1-28-54

*SHEPELEVA, E. S.*

USSR/Chemistry

Card 1/1 : Pub. 40 - 13/22

Authors : Kabachnik, M. I., and Shepeleva, E. S.

Title : About the reaction of aldehydes with chlorophosphines

Periodical : Izv. AN SSSR. Otd. khim. nauk 5, 862-867, Sep-Oct 1953

Abstract : The reaction of para-formaldehyde with the most accessible dichlorophosphines - ethyldichlorophosphine and phosphenyl chloride, was investigated. Results indicate that para-formaldehyde reacts with alkyl- and aryl dichlorophosphines resulting in the formation of secondary alkyl (or aryl)-chloromethylphosphinic chlorides. The derivation of free acids and their esters is described. The products obtained from the reaction of dipheylchlorophosphine with para-formaldehyde, are listed. Eight references: 5-USSR and 3-German (1876-1951). Table.

Institution : Academy of Sciences, USSR, Institute of Organic Chemistry

Submitted : December 31, 1952

Shepeleva, S.

fm

Interview with A S USSR

SHEFELYA, YE.S., SANIN, P.I., SHER, V.V., UL'YANOV, A.V. (Institute of Petroleum,  
AS USSR, Moscow)

"Use of Organophosphorus Compounds for Increasing the Quality of Lubricants"  
(Primeneniye fosfororganicheskikh soedineniy dlya povysheniya kachestva smazochnykh  
maseley)

Chemistry and Uses of Organophosphorous Compounds  
(Khimiya i primeneniye fosfororganicheskikh soedneniy),  
Trudy of First Conference, 8-10 December 1955, Kazan,  
pp. Published by Kazan Affil. AS USSR, 1957  
112-123,



*SHEPELEVA, Ye.S.*

USSR/Chemical Technology - Chemical Products and Their

I-8

Application. Treatment of Natural Gases and Petroleum.  
Motor and Jet Fuels. Lubricants.

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2599

Author : Sanin, P.I., Shepeleva, Ye.S., Sher, V.V., Ul'yanova, A.V.

Inst : Academy of Sciences USSR

Title : Use of Organophosphorus Compounds to Enhance the Quality  
of Lubricating Oils.

Orig Pub : Sb.: Khimiya i primeneniye fosfororgan. soedineniy. M.,  
AN SSSR, 1957, 112-123

Abstract : Description of the results of investigations of the effects  
of different organophosphorus compounds on the wear-redu-  
cing, detergent and anticorrosion characteristics of oil.  
It was found that lower trialkyl-trithiophosphites and tri-  
alkyl thiophosphates, containing C<sub>3</sub>-C<sub>5</sub> alkyls, improve the

Card 1/4

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2599

APPROVED FOR RELEASE 08/23/2000

CIA-RDP86-00513R001549220009-9

lubricating properties of oil to a greater extent than ad-  
ditives of long carbon radicals (for example, n-trioctadecyl trithiophosphate); trialkyl  
thiophosphates are less active than the trialkyl trithio-  
phosphites. The presence of phosphorus in the molecule  
of additives of this type, affects, first of all, their ca-  
pacity of increasing the critical load of the oil, while  
the presence of sulfur -- the capacity of improving the  
breaking-in of metal surfaces subjected to friction. It  
was ascertained that esters of chloromethyl- and beta-chlo-  
rethyl phosphinic and thiophosphinic acids, approximate,  
as wear-reducing additives, the most active thiophosphites  
and thiophosphates; the action of chlorine in compounds  
of this type is analogous to the effect of sulfur on the  
activity of thiophosphites and thiophosphates. The

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properties of the high-molecular dialkyl-dithiophosphate  
salts, is the atom of the metal; while the principal car-  
rier of anticorrosion characteristics of the compounds of

Card 3/4

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29447  
S/081/61/000/017/149/166  
B117/B138

AUTHORS: Sanin, P. I., Shepeleva, Ye. S., Ul'yanova, A. V., Kleymenov, Ye. V.

TITLE: Effect of synthetic lubricating oils additives on frictional wear

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1961, 472 - 473, abstract 17M224 (Tr. 3-y Vses. konferentsii po treniyu i iznosu v mashinakh. M., AN SSSR, v. 3, 1960, 234 - 239)

TEXT: The relative effect on the seizing load (SL) and on the wear of a number of Cl-, S-, and P-containing additives was studied on a 4-ball friction machine. The additives were tested in the solution of a highly refined mineral oil with a viscosity of 20.8 cst/50°C at a concentration of 6 moles of additive per 100 g of oil. Oleic and stearic acids, as well as methyl stearate, did not change the character of the wear-load curve, nor increase the SL of the pure oil (69 kg). SL were determined for the following additive solutions (in kg): methyl dichlorostearate, 126; tetrachloronaphthalene, 126; chlorinated paraffin C<sub>25</sub>H<sub>51</sub>Cl, 79; much  
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Effect of synthetic lubricating...

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B117/B138

higher chlorinated paraffin  $C_{25}H_{40}Cl_{12}$ ,  $(n-C_{18}H_{37}S)_3P$ , 110;  $(n-C_{18}H_{37}S)_3P$ , 68;  $(C_4H_9O)_3PO$ , 102;  $(C_4H_9S)_3PS$ , 69. An introduction of 1, 2, 3, and 4 S atoms in transition from  $(C_4H_9O)_3PO$  to  $(C_4H_9S)_3PS$  reduced the SL, but decreased the wear with loads above SL. Particularly high SL were obtained for compounds with molecules containing P and  $CCl_3$  groups:  $(C_4H_9O)_2P(O)CCl_3$  (the SL is 2.5 times higher than for pure oil),  $(CCl_3CH_2O)_3P$  (SL > 300), and tri-(trichloro-tert-butyl)-phosphite (SL > 300). At the same time these compounds reduce wear with loads above SL. [Abstracter's note: Complete translation.]

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Card 2/2

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S/081/61/000/022/062/076

B101/B147

11.9700

AUTHORS:

Sanin, N. I., Shepeleva, Ye. S., Ul'yanova, A. V.,  
Kleymenov, B. V.

TITLE:

Synthesis and properties of antiwear additives to lubricants

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 397, abstract  
22M122 (Tr. In-ta nefti. AN SSSR, v. 4, 1960, 98 - 117)

TEXT: A four-ball friction machine was used for studying the effect of various antiwear additives consisting of high-molecular aliphatic esters and organic compounds of S, P, and Cl. The authors employed solutions of the additives (6 mmoles per 100 g) in highly pure mineral oil (viscosity 20.8 centistokes at 50°C). Of no use under heavy load were additives the effect of which was based on adsorption only (high-molecular esters and higher fatty acids). Additives containing Cl (methyl esters of mono- and dichloro stearic acid, tetrachloro naphthalene, fractions of chlorinated paraffin) increased the critical load (CL) (the seizing load), and considerably reduced the wear under loads higher than CL. Additives of the types  $(RS)_3P$  and  $(RO)_3PS$  were found to reduce CL with increasing length

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Synthesis and properties...

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of the alkyl,  $R(C_3 - C_{18})$ ; efficient additives of these types should contain  $R = C_3 - C_5$ .  $(RS)_3P$  proved to be more efficient than  $(RO)_3PS$ . In additives containing P and S, P mainly increased the CL while S decreased the wear under loads above CL. Phosphinic esters,  $R'PO(OR)_2$ , proved to be more efficient than phosphoric esters containing no C-P bond. Introduction of Cl in phosphinic and phosphoric esters increased the efficiency of additives, and reduced the wear under loads above CL. Phosphinic and phosphoric esters containing the  $CCl_3$  group were of utmost efficiency. ✓  
The effect of the  $CCl_3$  group increasing the efficiency of antiwear additives was confirmed by the action of tetrachloro alkanes,  $CCl_3(CH_2)_nCl$  ( $n = 3 - 5$ ). The authors discuss the mechanism of action of antiwear additives containing various active elements and groups. There are 21 references. See also RZhKhim, 1961, 5M233. [Abstracter's note: Complete translation.]

Card 2/2

82511

S/065/60/000/008/003/007

E030/E412

15.6600

AUTHORS: Sanin, P.I., Shepeleva, Ye.S. and Kleymenov, B.V.

TITLE: Some Data on the Activity of Additives Containing the CCl<sub>3</sub> Group

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No.8, pp.24-28

TEXT: It has been shown that molecules containing phosphorus and CCl<sub>3</sub> groups are exceptionally good friction-reducing additives under high loads. Presumably this is due to the formation of phosphides and chloride layers on the metal. It is not merely the presence of chlorine which imparts activity, since monochloro-alkanes are not particularly effective, but the CCl<sub>3</sub> group as a whole. This group is known to be particularly reactive, as in the action of electrophilic or copper reagents, and in the formation of 1,5,5,6,6,10-hexachlorodecane from 1,1,1,5-tetrachloropentane. The base greases had a kinematic viscosity of 20.8 cs at 50°C. The trichloro compounds were formed by the polymerization of ethylene in the presence of carbon tetrachloride and were added as 6 times millimolar to the grease. The greases were subjected to the four-ball test. Firstly, the effect of the trichloro group was shown by Card 1/3

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E030/E412

Some Data on the Activity of Additives Containing the  $\text{CCl}_3$  Group

comparing the base grease, which had a critical load of 64 kg, with  $\alpha, \alpha, \alpha, \omega$  tetrachloro-alkanes which had critical loads from 100 - 110 (C<sub>5</sub> was as high as 130 kg). This behaviour is analogous to that of  $\text{CCl}_4$ , which is active, and of monochloro-alkanes, which are relatively inactive. Secondly, the addition of phosphorus was shown to increase the surface activity still further, as shown by comparing the methyl, trichloro and chloro ethylethers of methylphosphonic acid (critical loads less than 170 kg), and the trichloroethyl-diethyl ether of phosphonic acid (130 kg). Increasing the additive concentration fourfold had no effect. Increasing the number of  $\text{CCl}_3$  groups produces further striking increases in the high-load properties and in fact no critical loads could be observed with tri (trichloroethyl) phosphate and tri (trichlor-tert. butyl) phosphate, and the mark was only 8 mm in diameter at 300 kg load (30000 kg/cm<sup>2</sup> pressure). Smaller variations in activity and thermal stability were dependent on the position of the  $\text{CCl}_3$  group in the molecule. There are 3 figures,

Card 2/3

82511

S/065/60/000/008/003/007  
E030/E412

Some Data on the Activity of Additives Containing the  $\text{CCl}_3$  Group

3 tables and 11 references: 5 Soviet and 6 English.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR  
(Institute for Petro-Chemical Synthesis, AS USSR)

Card 3/3



386 91

S/510/60/014/000/006/006

D244/D307

119700  
AUTHORS: Sanin, P.I., Shepeleva, Ye.S., Ul'yanova, A.V., and Kleymentov, B.V.

TITLE: Synthesis and properties of anti-wear additives to lubricating oils

SOURCE: Akademiya nauk SSSR. Institut nefti. Trudy, v. 14, 1960, Khimiya nefti, 98 - 117

TEXT: The authors synthesized the wear-reducing properties of Cl, S and P compounds and also thio-phosphoroorganic and chlorophosphoroorganic compounds. The anti-wear properties were examined by dissolving the additives in a highly refined mineral oil, viscosity 20.8 cs at 50°C. The concentration of all the additives examined was 6 millimoles per 100 g of oil. The four-ball machine was used as a wear-tester with standard 12.7 mm diameter balls from UX-9 (ShKh-9) steel. The tests were conducted at 600 rpm. It was shown that the high molecular weight esters and acids which were assumed to have adsorptional anti-wear mechanisms, were not effective during the rubbing under high loads. Chlorinated esters of stearic acid and  
Card 1/3

Synthesis and properties of anti-wear ... S/510/60/014/000/006/006  
D244/D307

also fractions of chlorinated paraffin wax reduced the wear considerably above the seizure load. The best results were obtained with the wax fraction containing about 40 % Cl, the base oil containing about 7 % of the additive. For a series of esters  $(R S)_3P$  and  $(R O)_3P$  the critical load that could be tolerated by the oil blend, decreased with the increasing length of the hydrocarbon radical R. Thus any of the compounds with  $R = C_3 - C_5$  could be considered as possible additives. Trialkyl phosphates were less active as additives than trialkyl trithiophosphates. The presence of P and thiophosphate types exerted a predominant influence on their capacity to increase the critical load. The presence of S improved the wear-reducing properties at loads above the critical load. Chlorine in esters of chloralkylphosphorous acids acted in the same direction as S in thiophosphites. Thus the presence in one compound of P and Cl or P and S is very beneficial. The phosphite compounds  $R'PO (OR)_2$  having a C-P link, were considerably more active than the compounds containing only alkoxy groups, such as phosphites. It was shown that compounds containing the group  $- CCl_3$  have high anti-wear activity.

Card 2/3

Synthesis and properties of anti-wear ... S/510/60/014/000/006/006  
D244/D307

Esters  $\text{CCl}_3 \text{P}(\text{OR})_2$  increased the critical load to a value more than twice of that for the base oil and decreased the wear considerably in the region of high loads. It was established that the specific activity of the compounds containing  $\text{CCl}_3$  group is due to a high reactivity of Cl in the group with metal surfaces, on which a chloride film is formed. The wear reducing properties of additives of the  $\text{CCl}_3 \text{P}(\text{OR})_2$  type is due to the simultaneous action of the reactive Cl and P resulting in the formation of chloride and phosphide films on the rubbing metal surfaces. There are 12 figures and 9 tables. ✓

Card 3/3

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S/020/60/132/01/38/064

B011/B126

AUTHORS: Sanin, P. I., Voronkov, M. G., Shepeleva, Ye. S., Ionin, B. I.TITLE: The Interaction Between Dialkyl-phosphorous Acids<sup>1</sup> and Quinones<sup>1</sup>

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 1, pp. 145-148

TEXT: The organophosphorus compounds are highly active as additions to lubricating oils (Refs. 1-3). Some derivatives of dithiophosphorous, phosphoric, and phosphorous acids belong to them. The authors have taken the trouble to obtain organophosphorus compounds which are, amongst other things, also anti-oxidants, which hinder the oxidation<sup>1</sup> of hydrocarbons<sup>1</sup> by atmospheric oxygen. Thus, the authors tried to add acid esters of the phosphorous acid to the quinones. The reaction of dialkyl-phosphorous acids or phosphites with p-benzoquinone can take place in two ways and lead to: a) esters of dihydroxyphenylphosphoric acids (I) and (II), or b) compounds in which phosphorus is bonded with oxygen (III) and (IV) (Ref. 11). The authors have established that dialkyl-p-oxyphenylphosphates are formed on the reaction of dialkylphosphorous acids with p-benzoquinone. As a result, the phosphorous group adds to the oxygen atom of the benzoquinone (see scheme). This addition is accompanied by a conversion of the

Card 1/3

The Interaction Between Dialkyl-phosphorous Acids and  
Quinones

800614

S/020/60/132/01/38/064  
B011/B126

quinoid structure into a benzoid structure. The reaction between dialkylphosphorous acids and  $\alpha$ -naphthoquinone is similar. Table 1 shows the melting temperatures and the results of analyses of the compounds produced. They are crystalline substances, soluble in aqueous alkali solutions. They give the characteristic color reaction for phenylhydroxyl with ferric chloride, but no reaction for the carbonyl group. The hydrolysis of the substances obtained with HCl (1:1), and the saponification with alcoholic alkalis at 40-50° gives a yield of 80%. All compounds produced contain only one hydroxyl group. On the basis of the ultraviolet absorption spectra the authors have stated that esters of p-oxyphenyl-phosphorous acid are concerned. As can be seen from table 2, the absorption maximum of the products is shifted towards short waves, and agrees with the maximum of dimethyl-p-methoxyphenylphosphate. Thus, the results given above show that the said substances are really dialkyl-p-oxyphenylphosphates (see scheme). The following were also quoted: V. S. Abramov, A. N. Pudovik, Yu. P. Kitayev, and G. Zametayeva. There are 2 tables and 18 references, 10 of which are Soviet.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Institute  
of Petroleum-chemical Synthesis of the Academy of Sciences, USSR)

Card 2/3

35551  
S/081/62/000/006/090/117  
B167/B101

11-9701

AUTHORS: Shepeleva, Ye. S., Sanin, P. I.

TITLE: Organo-phosphorus chloro-compounds as wear-inhibiting additives under conditions of limiting friction

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 6, 1962, 542, abstract 6M264 (Sb. "Prisadki k maslam i toplivam". M., Gostoptekhizdat, 1961, 67-70)

TEXT: Additives for lubricating oils which contain P and the  $\text{CCl}_3$  group, such as phosphate esters containing  $\text{CCl}_3$  in their (alkyl) ester groups, and the esters of trichloromethyl phosphinic acid, are found to be very effective. A technical synthesis of dibutyl trichloromethyl phosphite (I), suitable for large-scale operation, has been developed. 1 mole of the tributyl phosphite and 2 moles of  $\text{CCl}_4$  are refluxed for 6 hrs, the excess of  $\text{CCl}_4$  and the by-product (butyl chloride) are distilled off in a vacuum of 30 mm Hg, and the residue is distilled in a vacuum of 3 mm Hg

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Organo-phosphorus chloro-compounds ...

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B167/B101

to give a fraction of technical I in 70% yield ( $n_D^{20}$  1.4580,  $d_4^{20}$  1.1996, Cl found 30% as against 34.1% theoretical yield). Technical I is the antiwear additive  $\chi_{\text{ap}\phi}$  -40 (Khloref-40), which gave positive test-bench results as a transmission oil additive. [Abstracter's note: Complete translation.]

Card 2/2

VINOGRADOV, G.V.; LIAN GO-LIN' [Liang Kuo-lin]; PODOL'SKIY, Yu.Ya.;  
SANIN, P.I.; SHEPELEVA, Ye.S.

Peculiarities of the joint action of air (molecular oxygen)  
and thio-, phosphorus- and chloroorganic compounds as addi-  
tives to mineral oils of different viscosities. Neftekhimia  
1 no.3:433-443 My-Je '61. (MIRA 16:11)

1. Institut neftekhimicheskogo sinteza AN SSSR.



22282

S/152/61/000/004/003/009  
B126/B219

15-6600 1583, 2209

AUTHORS: Vinogradov, G. V., Podol'skiy, Yu. Ya., Shepeleva, Ye. S.

TITLE: Examination of mineral oil additives as seizing protectors  
for steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz, no. 4,  
1961, 63-67

TEXT: In this article, a new method of determining the effect of additives on seizing and welding through friction of metals is described. This method is based on a continuous change in the sliding speed over a wide range. The tests were carried out on a four-sphere device with automatic recording of the friction coefficient. The speed variation of the upper sphere from 0 to  $19.5 \cdot 10^3$  rpm was accomplished by a specially constructed appliance. The spheres had 12.7 mm in diameter and were made of WX6 (ShKh6) steel hardened to 62 R<sub>c</sub>; all the experiments were carried out at 20°C. The naphthenic paraffin fraction of the oil MC-14 (MS-14) was used as a base oil, with the following additives: 1) 0.15 mole/l dibenzyl disulfide, 2) 0.05 mole/l 1-trichloro-5-methylpentane, 3) 0.05 mole/l  
Card 1/2

22282

S/152/61/000/004/003/009  
B126/B219

Examination of mineral...

dibutylester of methylphosphinic acid, 4) 0.05 mole/l tri-(trichloroethyl) phosphite. With naphthenic paraffin in oil, seizing occurred at a considerably higher speed and at low load; an increase of the load at relatively low speeds initiated seizing. When dibenzyl disulfide was added, seizing occurred at sliding speeds that are between those at which seizing is initiated and those at which repeated and very intense seizing occurs with naphthenic paraffin oil. A trichloromethyl additive had a slight effect at low load and became more efficient on increase of the latter; the friction coefficient remained low up to the limiting speed; a further increase in load reduced the effect of the additive. The ester of methylphosphinic acid affects the seizing loads very much. Organic phosphorus compounds are very efficient and have the ability of modifying the friction surfaces; the addition of chlorine derivatives considerably increases the already high critical values of these additives. These results show that the new method facilitates the examination of the efficiency of additives. There are 4 figures.

ASSOCIATION: Akademiya bronetankovykh voysk im. I. V. Stalina (Academy of Armored Troops imeni I. V. Stalin)

SUBMITTED: October 1, 1960

Card 2/2

SHEPELEVA, YE. S.

43

PHASE I BOOK EXPLOITATION

SOV/6034

Konferentsiya po khimii i primeneniyu fosfororganicheskikh soyedineniy. 2d, Kazan', 1959.

Khimiya i primeneniye fosfororganicheskikh soyedineniy; trudy (Chemistry and Use of Organophosphorus Compounds; Conference Transactions) Moscow, Izd-vo AN SSSR, 1962. 630 p. Errata slip inserted. 2800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Kazanskiy filial.

Resp. Ed.: A. Ye. Arbuzov, Academician; Ed. of Publishing House: L. S. Povarov; Tech. Ed.: S. G. Tikhomirova.

PURPOSE: This collection of conference transactions is intended for chemists, process engineers, physiologists, pharmacists, physicians, veterinarians, and agricultural scientists.

COVERAGE: The transactions include the full texts of most of the scientific papers presented at the Second Conference on the Chemistry and Use of

Card 1/14

43

Chemistry and the Use of Organophosphorus (Cont.)

SOV/6034

Organophosphorus Compounds held at Kazan' from 2 Nov through 1 Dec 1959. .  
The material is divided into three sections: Chemistry, containing 67 articles; Physiological Activity of Organophosphorus Compounds, containing 26 articles; and Plant Protection, containing 12 articles. The reports reflect the strong interest of Soviet scientists in the chemistry and application of organophosphorus compounds. References accompany individual reports. Short summaries of some of the listed reports have been made and are given below.

TABLE OF CONTENTS:[Abridged]:

Introduction (Academician A. Ye. Arbuzov)

3

TRANSACTIONS OF THE CHEMISTRY SECTION

Gefter, Ye. L. [NII plastmass (Scientific Research Institute of Plastics, Moscow)]. Some Prospects for the Industrial Use of Organophosphorus Compounds

46

Card 2/4

Chemistry and the Use of Organophosphorus (Cont.)

SOV/6034

detergents, anticorrosion agents, antiwear additives, as well as serve as demulsifiers, antioxidants, and depressants. Methods for preparing industrial additives by synthesis are pointed out and described.

Sanin, P. I., Ye. S. Shepeleva, and B. V. Kleymenov [Institute of Petrochemical Synthesis]. Organophosphorus Compounds With  $\text{CCl}_3$  as Additives to Lubricants

389

A synthesis of compounds containing the  $\text{CCl}_3$  group has been made and their effect as wear-reducing additives under friction conditions at high loads studied. It has been shown that the effect of this type of compound depends largely on the presence of the  $\text{CCl}_3$  group in the molecule and that the chloride film on the friction surface of the metal develops due to the effect of the chlorine atoms in the  $\text{CCl}_3$  group.

Voskresenskiy, V. A. [Kazanskiy inzhenerno-stroitel'nyy institut (Kazan' Construction Engineering Institute)]. Trichlorotricresyl

Card 12/14

SHEPELEVA, YE.S., SANIN, P.I.

Reaction of dialkylphosphorous acids with p-benquinone.

Khimiya i Primeneniye Fosfororganicheskikh Soyedineniy (Chemistry and application of organophosphorus compounds) A. YE. ARZHOV, Ed.  
Publ. by Kazan Affil. Acad. Sci. USSR, Moscow 1962, 432 pp.

Collection of complete papers presented at the 1959 Kazan Conference on Chemistry of Organophosphorus Compounds.

SHEPELEVA, Ye.S.; SHER, V.V.

Collected works of the Scientific and Technical Conference on  
"Additives to lubricants and fuels." Reviewed by E.S.Shepeleva,  
V.V.Sher. Neftekhimiia 2 no.3:420-423 My-Je '62. (MIRA 15:8)  
(Lubrication and lubricants--Additives)

SHEPELEVA, YE.S., ULYANOVA, A.V., SHER, V.V., KLEYMENOV, B.V.,

Synthesis of friction wear-reducing additives and investigation of the  
mechanism governing their action

Report to be submitted for the Sixth World Petroleum Congress,  
Frankfurt, 16-26 June 63



SANIN, P. I.; SHEPELEVA, Ye. S.; MANNIK, A. O.; KLEYMENOV, B. V.

"Chemical modification of friction surfaces."

report submitted to Intl Lubrication Conf, Washington, D.C., 13-16 Oct 64.

SANIN, P. I.; SHEPELEVA, Ye. S.; MANNIK, A. O.; KLEYMENOV, B. V.

"Chemical modification of friction surfaces."

report presented at the Intl Lubrication Conf, Washington, D.C., 13-16 Oct 64.

Inst of Petrochemical Synthesis, AS USSR, Moscow.

L 51814-65 ENT(m)/EPF(e)/ENP(j) Pc-l/Pr-l RM

ACCESSION NR: AP5017013

UR/0204/64/004/006/0899/0905

AUTHOR: Myannik, A. O.; Shepeleva, Ye. S.; Sanin, P. I.

TITLE: Synthesis and properties of some esters of phosphoric, thiophosphoric and phosphinic acids

SOURCE: Neftekhimiya, v. 4, no. 6, 1964, 899-905

TOPIC TAGS: ester, phosphoric acid, phosphinic acid, organic sulfur compound, organic synthetic process

ABSTRACT: A number of esters of phosphoric, thiophosphoric, and phosphinic acids were synthesized and described. Esters of thiophosphoric acid containing thiol sulfur were prepared from sodium salts of dialkylthiophosphoric acids and alkyl halides, the salt with thione structure giving an ester with a thiol structure. Esters of thiophosphoric acid containing thione sulfur were produced by various methods: triethylthione phosphate by the reaction of sodium ethylate and phosphorus thiochloride; diethylbutylthione phosphate from the chloride of diethyl thiophosphoric acid. Esters containing the trichloromethyl group were produced by a scheme including the reaction of sulfur with the correspond-

Card 1/2

L 51814-65

ACCESSION NR: AP5017013

ing phosphite; esters of phosphinic acids were produced from the corresponding dichlorides of phosphinic acids and alcohols. The activity of the esters as additives for reducing wear under conditions of high loads were found to depend on the structure of the ester. Esters containing thiol sulfur are more active than esters containing thione sulfur. Esters containing the trichloromethyl group are the most active.  
Orig. art. has: 11 formulas, 5 graphs, 2 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva AN SSSR  
(Institute of Petro-Chemical Synthesis AN SSSR)

SUBMITTED: 29Apr64

ENCL: 00

SUB CODE: 00, GC

NR REF SOV: 009

OTHER: 007

JPRS

Card 2/2

L 11521-00 ENT(m)/ENF(j)/T DJ/RM

ACC NR: AP6030551

(A, P')

SOURCE CODE: UR/0413/66/000/016/0031/0931

INVENTOR: Sanin, P. I.; Shepeleva, Ye. S.; Borodach, M. S.; Myannik, A. G.;  
Varshavskiy, E. L.; Petyakina, Ye. I.; Vinogradova, I. E.

41  
B

ORG: none

TITLE: Preparative method for bis(trichloroalkyl) esters of alkylphosphonic acids.  
 Class 12, No. 184244 (announced by the Institute of Petrochemical Synthesis, AN SSSR  
 (Institut neftekhimicheskogo sinteza AN SSSR))

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 31

TOPIC TAGS: lubricant additive, mineral oil, alkylphosphonic acid

ABSTRACT: An Author Certificate has been issued for a preparative method for bis(trichloroalkyl) esters of alkylphosphonic acid of the general formula  $RP(O)[C(CH_2)_nCCl_3]_2$  where R is an alkyl group and  $n = 1, 4, 6, 8$ . To obtain such esters suitable as additives to mineral oils, alkylphosphonic dichlorides are treated with trichloroalkyl alcohols in the presence of an organic base, e.g., pyridine. [SM]

SUB CODE: 07, 11/ SUBM DATE: 05May65/ ATD PRESS: 5072

Card 1/1 fv

UDC: 547.25.113.07

ACC NR: AP6029023

SOURCE CODE: UR/0413/66/000/014/0024/0024

INVENTOR: Sanin, P. I.; Shepeleva, Ye. S.; Borodach, M. S.; Myannik, A. O.; Kagan, Yu. S.; Gel'fer, A. P.; Paykin, D. M.; Gamper, N. M.

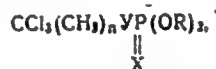
ORG: none

TITLE: Preparation of esters of phosphoric and thiophosphoric acids. Class 12, No. 183751 [announced by Institute of Petrochemical Synthesis, AN SSSR (Institut neftekhimicheskogo sinteza AN SSSR)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 24

TOPIC TAGS: insecticide, chloroalkyl phosphate, chloroalkyl thiophosphate, ester, phosphoric acid

ABSTRACT: In the proposed method for the preparation of herbicides, the phosphoric and thiophosphoric esters of the general formula:



(where X and Y are O or S; n = 1, 4, 6, 8; and R is an alkyl) are obtained by the reaction of trichloroalkyl alcohols with tetrachloroalkanes [sic]. [WA-50; CBE No. 11]

SUB CODE: 07/ SUBM DATE: 21Jun65/

Card 1/1

UDC: 547.26'118.07

SHEPELEVICH, V.

Our practice in building with clay and straw mortar. Sel'.stroï.  
11 no.6:18-19 Je '56. (MIRA 9:9)

1.Starshiy inzhener Upravleniya po stroitel'stvu v kolkhosakh  
Bashkirskey ASSR.  
(Building materials) (Farm buildings)

SHEPELEVSKAYA, N.N. [Shepelevs'ka, N.M.] (Kiev).

Generalized method for reducing the solution of the axisymmetrical problem of underground water flow to the solution of the plane problem [in Ukrainian with summaries in Russian and English]. Prikl. mekh. 4 no.1:87-96 '58. (MIRA 11:4)

1. Kiivs'kiy politekhnichniy institut.  
(Water, Underground)



ACCESSION NR: AP5017072

Pd-1/Pu-4 WW

UR/0198/64/010/005/0477/0483

37  
36  
B

AUTHOR: Kil'chevs'kyi, M. O. (Kil'chevskiy, N. A.) (Kiev); Shepelevs'ka, N. N. (Shepelevskaya, N. N.) (Kiev)

TITLE: Approximate solutions of certain hydroelastic problems

SOURCE: Prykladna mekhanika, v. 10, no. 5, 1964, 477-483

TOPIC TAGS: fluid mechanics, hydrodynamics, surface geometry, differential equation, integral equation

Abstract: A method in which a shell-liquid system is approximately replaced by a system having a finite number of degrees of freedom and allowing the use of the Euler-Lagrange principle has been studied. After analyzing the constraints imposed on the system, the authors show that from the conditions at the free surface there follows an equation of non-holonomic constraint which does not allow the application of the classical Ostrogradskiy-Hamilton and Euler-Lagrange principles. However, by averaging over the volume enclosing the possible locations of the free surface, the above-mentioned constraint is replaced by a geometric constraint. This simplification makes possible the elimination (using the energy integral) of the relative velocity components (within the nonviscous fluid) from the

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1. 52-103-15

ACCESSION NR: AP5017072

expression for the kinetic energy of the system. This, in turn, makes possible the use of the Euler-Lagrange principle in place of the Ostrogradskiy-Hamilton principle. The resulting system of integral-differential equations is a generalization of the well-known Jacobi equations.

Orig. art. has 4 formulas.

ASSOCIATION: Instytut mekhaniky AN URSR (Mechanics Institute, AN URSR)

SUBMITTED: 18Oct63

ENCL: 00

SUB CODE: ME, MA

NO REF SOV: 005

OTHER: 000

JPRS

*LLC*  
Card 2/2

KILICHENKO, M.M. [Kilichevskiy, M.M.] (Kyiv); CHERPELEVSKAYA, N.N.  
[Cherpelevskaya, N.N.] (Kyiv)

approximate solution of some problems in the hydroelasticity.  
Ukr. zh. tekhn. nauch. 10 no.5:477-483 1961. (NIRA 17:10)

1. Institut tekhn. nauch. in UkrSSR.

SHEPELEVSKIY, A.A.

"The Computation of Gradients on the Earth's Surface," Izvestiya GGO,  
1935 (1934), No 2-3, pp. 56-71.

SHEPELEVSKIY, A. A.

"Accuracy of Temperature Determination in the Free Atmosphere,"  
Trudy NIU GuGMS, Series I, No 19, 1945

SHEPELEVSKIY, A. A'

DROZDOV, O. and SHEPELEVSKIY, A., "Theory of Interpolation in the Stochastic Field of Meteorological Elements, and Its Application to Problem of Meteorological Charts and Rationalizations of Networks", Works of Sci-Res Institution of the Main Administration of the Hydrometeorological Service SSSR, Series 1, No 13, 1946 (65-115). (Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218, 3 Apr 1953

SHEPELEVSKIY, M.I. [Shepelevs'kiy, M.I.], inzh.

Radioactive tracers. Nauka i zhyttia 8 no.11:15-19 N '58.  
(MIRA 13:5)

(Radioactive tracers)

S/114/60/000/007/006/009  
E194/E455

AUTHORS: Verbin, D.S., Engineer and Shepilevskiy, V.M., Engineer  
TITLE: Automatic Welding of Steam Turbine Diaphragms in an  
Atmosphere of Carbon Dioxide at the Leningrad Metal  
Works (LMZ)

PERIODICAL: Energomashinostroyeniye, 1960, No.7, pp.29-31

TEXT: Welding of turbine diaphragms calls for accurate work of high quality. The following grades of steel are used in diaphragms for the body: 12XMF (12KhMF), 12MX (12MKh), 20XM (20KhM), 15XMA (15KhMA), MU3 (MSt3); for the rims, the same grades except 15KhMA; for the blades, 1X13 (1Kh13) and 15X11M (15Kh11MF); for shrouds, 1X13 (1Kh13); and for baffles, MSt3. Automatic welding in a carbon dioxide atmosphere has now been successfully developed for the following combinations of steel: MSt3 - 1Kh13; 12MKh - 1Kh13; and 12MKh - 12MKh. For welding parts of diaphragms made of steel MSt3 - 1Kh13, the welding wire is grade CBO8Г2CA (SV08G2SA) and for steels 12MKh - 1Kh13 and 12MKh - 12MKh wire, CBO8XГCMA (SV08KhGSMA). Previously, welding was done by hand and working conditions were very difficult. The main defects of hand welding were that the root

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S/114/60/000/007/006/009  
E194/E455

Automatic Welding of Steam Turbine Diaphragms in an Atmosphere  
of Carbon Dioxide at the Leningrad Metal Works (LMZ)

of the weld was not fully heated and slag inclusions occurred. Automatic welding has been considered for a long time but until recently only the submerged-arc method was available. Tests made with it were not very successful, for reasons which are explained. When welding in an atmosphere of carbon dioxide, the arc burns in a protective medium of colourless gas so that the work can be observed; the weld surface is covered by only a very thin film of oxide, so that three or four layers can be made without removing it. In the fourth quarter of 1958, the Leningrad Metal Works made the first installation for automatic welding of diaphragms in a carbon dioxide atmosphere. The equipment had the following main parts: a mechanically-driven table with a wide range of working speeds; four elements for heating up the diaphragm during the process of welding; devices for fixing and tilting the diaphragm; a column for the welding head and a control panel and source of supply. The gas is delivered from two cylinders and is heated and dried. The

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S/114/60/000/007/006/009  
E194/E455

Automatic Welding of Steam Turbine Diaphragms in an Atmosphere  
of Carbon Dioxide at the Leningrad Metal Works (LMZ)

initial installation was found to have several defects and the method of centering and fixing the diaphragms was improved. Special burners were developed to ensure reliable gas protection of the molten metal to a depth of 75 mm and ultimately burners with lateral gas delivery were adopted. Delivery of gas from both sides was found to be the most reliable. By the end of 1958, welding conditions were determined by laboratory investigations of diaphragms with the following combinations of steel 1Kh13 - 12KhM and 1Kh13 - MSt3. Physical tests and chemical analysis of the weld metal gave satisfactory results and the diaphragm geometry was satisfactory. Details are given of the welding conditions that were found most satisfactory. The quality of the carbon dioxide is important, at present use is made of food quality carbon dioxide to standard ГОСТ8050-56 (GOST8050-56) which does not, however, meet all requirements particularly in respect of water content. A number of steps are taken to prevent water reaching the arc zone. Recently, the works has received two instruments for checking the

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S/114/60/000/007/006/009  
E194/E455

Automatic Welding of Steam Turbine Diaphragms in an Atmosphere  
of Carbon Dioxide at the Leningrad Metal Works (LMZ)

quality of carbon dioxide so that soon all of it will be checked. The works now has only one installation for welding blades into the body and rim and so it is not possible to use automatic welding on all diaphragms. A second installation of simpler design is being made and will soon begin work, so that in 1960 all diaphragms can be automatically welded. The Leningrad Metal Works installation is of universal design and other types of work can be carried out on it. The use of automatic welding under carbon dioxide atmosphere for diaphragms has greatly reduced welding defects; the defects still most commonly encountered are pores in the weld metal. The main cause of pore formation is inadequate purity of the carbon dioxide and various failures to observe the set welding conditions. Recently, the extent of pore formation has been much reduced. On the basis of the limited experience available, it is concluded that automatic inert-gas arc-welding of turbine diaphragms is an efficient method of increasing the labour productivity and

Card 4/5

*Shepelin, O.P.*  
BABAYANTS, R.A., professor; BATMANOVA, O.Ya., kand.med.nauk; VOLKOVA, N.V.,  
kand.med.nauk; KIYAMOV, N.V., kand.med.nauk; LYKOVA, A.S., kand.  
med.nauk; MASOL'NIKOVA, T.K., kand.med.nauk; RUDEYKO, V.A., kand.  
med.nauk; TOMILINA, K.A., kand.med.nauk; SHISTOVSKIY, S.P., kand.  
med.nauk; KIRPICHEV, M.P., sanitarnyy vrach; MAKHINENKO, A.I.,  
sanitarnyy vrach; OSHCHEPKOV, A.A., sanitarnyy vrach; PETROV, A.M.,  
sanitarnyy vrach; ROSHAL', M.A., sanitarnyy vrach; SHEPELIN, O.P.,  
sanitarnyy vrach

Sewage irrigation of fields and sanitation of natural waters. Gig.  
i san. 22 no.9:64-67 s '57. (MIRA 10:12)

1. Zaveduyushchiy kafedroy Obshchey Gigiyeny Leningradskogo  
sanitarno-gigiyenicheskogo meditsinskogo instituta, chlen-  
korrespondent AMN SSSR (for Babayants)

(WATER SUPPLY WATER POLLUTION

sanitary protection of water reservoirs in use of sewage  
water for field irrigation)

(IRRIGATION

same)

SHEPELIN, O. P., Cand of Med Sci -- (diss) "Influence of the Impulsive and Stable Noise on the Separate Function of the Organism in Both Production and Experimental Conditions," Leningrad, 1959, 17 pp (Leningrad Sanitary-Hygiene Institute) (KL, 6-60, 126)

SHCHAPLIN, O.P., aspirant

Problem of the effect of pulse noise on workers in industrial conditions. Gig.i san. 24 no.8:26-32 Ag '59. (MIRA 12:11)

1. Iz kafedry obshchey gigiyeny Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta i laboratorii po bor'be s proizvodstvennym shumom Vsesoyuznogo instituta okhrany truda Vsesoyuznogo tsentral'nogo soveta profsoyuzov VTsSPS (Leningrad).  
(NOISE, effects)

SHEPELIN, O.P.

Study of the influence of impulse and stable noise on the body.  
Trudy LSGMI no. 58:237-272 '60. (MIRA 14:11)  
(NOISE--PHYSIOLOGICAL EFFECT)

SHEPELIN, O.P., assistant

Effect of pulsating and constant noise on the organism under  
experimental conditions. Gig.i san. 26 no.3:25-31 Mr '61.  
(MIRA 14:7)

(NOISE—PHYSIOLOGICAL EFFECT)



SHEPELIN, O.P., kand.med.nauk

Comments on the article by V.M.Grigor'ev, Candidate of Medical Sciences, on "Some problems in the hygiene aspects of industrial noises". Gig. i san. 26 no.11:87-88 N '61. (MIRA 14:11)

1. Iz Blagoveshchenskogo meditsinskogo instituta.  
(NOISE—PHYSIOLOGICAL EFFECT) (INDUSTRIAL HYGIENE)  
(GRIGOR'EV, V.M.)

SHEPELIN, O.P., kand. med. nauk

Physiological and hygienic bases for the study and determination of standards for impulse noise. Gig. sanit. 28 no.2:  
(MIRA 17:2)  
85-88 '63

1. Iz Blagoveshchenskogo gosudarstvennogo meditsinskogo instituta.

SOV/115-59-8-21/33

25(1)

AUTHOR:

Shepelin, S. G.

TITLE:

A Portable Device for Checking Alternating Current  
Voltsmeters and Ammeters

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ABSTRACT:

The electrician of a plant laboratory, V. A. Vorontsov, suggested a portable device for checking alternating current ammeters measuring up to 50 amps and voltmeters up to 450 volts, installed on instrument panels. The purpose of this equipment is to eliminate the removal of the instruments from the panel and transporting them to the laboratory for checking. The device consists of a case in which the following instruments are mounted: Ammeter AST, 2.5 - 5 amps; voltmeter ASTV, 150 - 300 volts; additional DV resistors for expanding the measuring range of voltmeter to 450 and 600 volts; current transformer UTT-5 with a primary current of 15, 50, 100, 150, 200, 300 and 600 amps and 5 amps secondary current; laboratory autotransformer LATR-2; load transformer with a 220-volt primary coil. The application of this device at Vorontsov's plant resulted in

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an annual saving of 7,000 rubles. A note from the editor says that the checking of ammeters and voltmeters is performed faster in laboratories on stationary devices than by means of the described equipment. Consequently, this device should be introduced at plants only in case there are considerable difficulties in removing panel instruments for checking.

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